Commercial Building Partnerships Tackle Unprecedented Energy Savings

Teams of companies from the private sector, working with the U.S. Department of Energy (DOE) and national laboratories, are conducting cost-shared research, development, and deployment and constructing or retrofitting buildings that will achieve significant, unprecedented energy savings.

The assistance NREL researchers provided to the owners of the BigHorn Home Improvement Center in Silverthorne, Colorado, substantially reduced energy usage and costs. For more information, go to www.nrel.gov/docs/fy05osti/34930.pdf.

As part of its effort to advance the development of market-ready, cost-neutral, net-zero energy commercial buildings, DOE is fostering collaborations between its national laboratories and the private sector that will result in significant, unprecedented energy savings. These Commercial Building Partnerships are a critical component of the Net-Zero Energy Commercial Building Initiative (CBI) that aims to achieve marketable net-zero energy commercial buildings by 2025.

Cost Sharing

The Commercial Building Partnerships operate as a public/private cost-sharing program. DOE contributes funds in the form of technical support from the national laboratories.

Under the arrangement, Partners cost share 20 percent of the total value of the project in the form of company resources. They track their participatory expenses and report this information to the national labs. DOE cannot pay for Partners' construction costs, equipment purchases, or additional fees charged by their contractors or design team.

Currently, national laboratories are working with more than 20 Commercial Building Partners—including retailers, real estate management companies, and distribution facility providers—to create, test, and validate design concepts that will move the industry toward net-zero energy commercial buildings. The Partners have agreed to construct new buildings that use 50 percent less energy than ASHRAE/IESNA Standard 90.1-2004 and retrofit buildings that use 30 percent less energy than the CBECS baseline or the mean of their building portfolio.

A fundamental premise behind the Partnerships is that reducing energy consumption, and therefore lowering operating expenses, makes good business sense. However, to make a full and compelling business case for participation, energy-saving design and performance verification protocols must integrate smoothly into building and renovation processes. Toward that end, the national laboratories will actively solicit feedback from participants about the impacts of these practices. They will then integrate the findings into their reports and other documentation.

Partners, chosen from the same target markets as the Commercial Building Energy Alliances (CBEAs), work closely with CBEAs, sharing information and identifying promising technologies for field testing. CBEAs are informal associations created among building owners and operators who want to reduce energy consumption. DOE has launched alliances in the retail, commercial real estate, and hospital sectors and also plans to launch alliances for higher education and state and local governments.

New Commercial Building Partnerships

Ideal Commercial Building Partnership candidates are companies that want to demonstrate highly energy-efficient building projects and in doing so, inspire and enable the commercial building sector to pursue similar advancements.

DOE plans to seek new CBP projects and will consider proposals from a variety of commercial building sectors (i.e., municipalities, states, academic institutions, nonprofits, private businesses, federal agencies).

There are two categories of Partners: 1) Large Portfolio Partners, which own or operate a significant number of buildings of a similar type (i.e., chain stores, hotels, academic institutions), and 2) Exemplary Project Partners, which seek to design or retrofit a building to achieve exemplary performance, regardless of the size of their building portfolio.

Proposals will be evaluated on a competitive basis to determine which best fulfill the program's current objectives. Once accepted, projects will be evaluated regularly to ensure that critical program requirements are met on time and on budget.

How Partners Benefit

Partners receive state-of-the-art assistance from the national laboratories that may include:

- Energy modeling and strategy optimization
- Integrated design processes that incorporate energy efficiency and renewables
- Guidance procuring materials and equipment and assembling design teams
- Energy performance verification of completed projects (does not include equipment purchases)
- Low-energy building designs that can be replicated across company portfolios
- Detailed documentation of the processes and results, including business case studies and lessons learned.

Partners continue to benefit from reduced operating expenses after construction is complete. This bottom-line savings will come not only from significant reductions in building energy costs, but also from implementation of best practices that can improve equipment reliability, reduce outages, and improve disaster mitigation capabilities.

Commercial Building Partnerships: Getting the Job Done

Commercial Building projects are evaluated at regular intervals using a Stage-Gate® process to ensure that critical program requirements are met on time and on budget. The following is an overview of the Stage-Gate process for the first round of partnerships.

Predesign and Planning

The national laboratories work with each Partner to identify potential new construction and renovation projects by benchmarking existing building energy use, analyzing building portfolios, and determining the best energy efficiency strategies for each operating climate. Their objective is to find energy-efficient solutions that meet the Partner's business needs, constraints, and objectives.

Design

The national laboratories assist in the development of designs for new construction and renovation projects. The laboratories provide integrated design expertise to ensure that all building components and systems work together to save energy and reduce environmental impact. They also provide detailed energy and cost analyses to confirm that the proposed designs meet both energy-savings targets and cost requirements.

Performance Verification

During the construction process, the national laboratories and Partners work together to ensure that the energy efficiency measures are installed and functioning correctly. When a building is operating as designed, the laboratories will measure its energy consumption and determine how its performance compares with the target energy goals.

Reporting

The national laboratories prepare case studies, detailed research reports, and an overall assessment that addresses the specific business case for making energy efficiency building improvements. Without disclosing proprietary business information, these pre-approved reports are shared within the Partners' respective industries.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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Commercial Building Initiative

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